SEDERO SUBDIVISION (PWS 6390022)
SOURCE WATER ASSESSMENT FINAL REPORT

February 21, 2003

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated assessment areas and sensitivity factors associated with the well and the aquifer characteristics.

This report, *Source Water Assessment for Sedero Subdivision, American Falls, Idaho*, describes the public water system (PWS), the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The Sedero Subdivision (PWS # 6390022) is a community drinking water system located in Power County near American Falls Reservoir. The system has one well that supplies drinking water to approximately 30 persons through 14 connections.

The potential contaminant source within the delineation capture zone of the well is Siphon Road. If an accidental spill occurred into this corridor, inorganic chemical (IOC) contaminants, volatile organic chemical (VOC) contaminants, or synthetic organic chemical (SOC) contaminants could be added to the aquifer system. No other potential contaminant sources were identified within the delineated area that may contribute to the overall vulnerability of the water source.

Final well susceptibility scores are derived from equally weighted potential contaminant Inventory/land use, hydrologic sensitivity, and system construction scores. Therefore, a low rating in one category coupled with a higher rating in another category results in a final rating of low, moderate, or high susceptibility. Potential contaminants are divided into four categories: IOCs (i.e., nitrates, arsenic), VOCs (i.e., petroleum products), SOCs (i.e., pesticides), and microbial contaminants (i.e., bacteria). As a well can be subject to various contamination settings, separate scores are given for each type of contaminant.

For the assessment, a review of laboratory tests was conducted using the State Drinking Water Information System (SDWIS). No VOCs or microbials have been detected in the well water. The IOCs barium, fluoride, and nitrate have been detected in the well water samples but at concentrations below the maximum contaminant level (MCL) for each chemical, as established by the EPA. The SOC Di(2-ethylhexyl)-Phthalate was detected in the well (June 2002). The well exists in a county with high herbicide and agricultural chemical use. In addition, the delineation intersects SOC priority areas for the pesticides ethylene dibromide and atrazine. A priority area is an area where greater than 25% of wells/springs show levels greater than 1% of the primary standard or other health standards.

In terms of total susceptibility, the well rated moderate for IOCs, VOCs, automatically high for SOCs, and moderate for microbial contaminants. Hydrologic sensitivity rated moderate and system construction rated high for the well. Potential contaminant land use scores were moderate for IOCs, and low for VOCs, SOCs, and microbial contaminants. The automatically high SOC rating is due to a detection of Di(2-ethylhexyl)-Phthalate in the well (June 2002). The absence of a well log, the condition of the wellhead, and the large amount of irrigated agricultural land use contributed to the overall susceptibility ratings of the system.
This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well or spring sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For the Sedero Subdivision, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). The Sedero Subdivision may need to consider implementing engineering controls to detect and perhaps eliminate the occurrence of agricultural chemicals and contaminants in the drinking water. As land uses within most of the source water assessment areas are outside the direct jurisdiction of the Sedero Subdivision, collaboration and partnerships with state and local agencies and industry groups should be established and are critical to success. Providing the state and local agencies with a well log of the well may assist them in determining the drinking water needs for the Sedero Subdivision. Educating homeowners and the public about source water will further assist the system in its monitoring and protection efforts.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan. Public education topics could include household hazardous waste disposal methods and the importance of water conservation. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Power County Soil Conservation District, and the Natural Resources Conservation Service.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (e.g. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Pocatello Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR SEDERO SUBDIVISION, AMERICAN FALLS, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this assessment means.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are included. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is included.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U.S. Environmental Protection Agency (EPA) to assess over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the well, and aquifer characteristics. All assessments must be completed by May of 2003. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water supply system is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the public water system (PWS).**

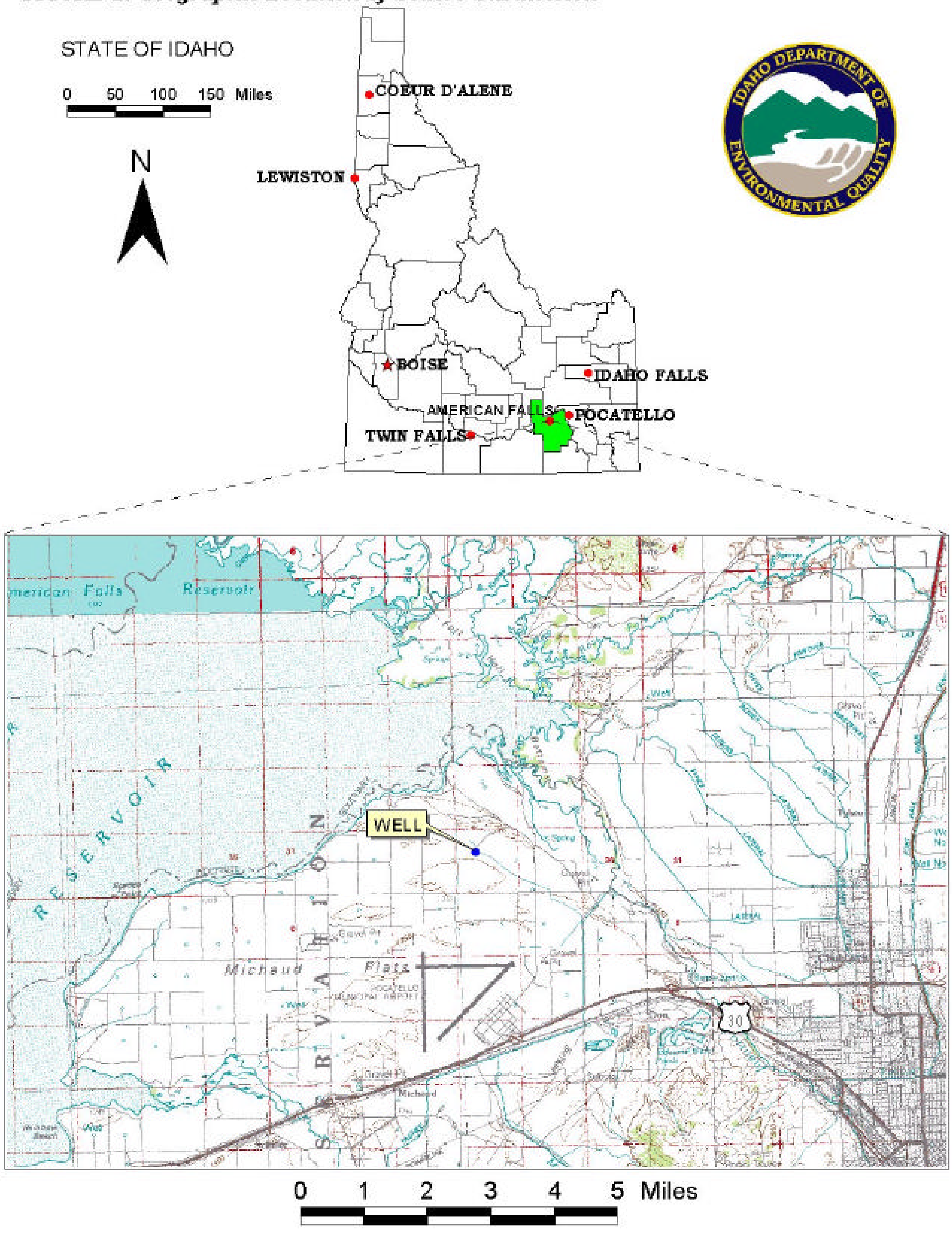
The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. DEQ recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Sedero Subdivision (PWS # 6390022) is a community drinking water system located in Power County near American Falls Reservoir. The system has one well that supplies drinking water to approximately 30 persons through 14 connections (see Figure 1).

FIGURE 1. Geographic Location of Sedero Subdivision



No volatile organic chemicals (VOCs) or microbials have been detected in the well water. The inorganic chemicals (IOCs) barium, fluoride, and nitrate have been detected in the well water samples but at concentrations below the maximum contaminant level (MCL) for each chemical, as established by the EPA. The synthetic organic chemical (SOC) Di(2-ethylhexyl)-Phthalate was detected in the well in June 2002. The well exists in a county with high herbicide and agricultural chemical use. In addition, the delineation intersects SOC priority areas for the pesticides ethylene dibromide and atrazine.

Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a pumping well) for water in the aquifer. Washington Group International (WGI) was contracted by DEQ to define the public water system's zones of contribution. WGI used a calculated fixed radius model approved by the Source Water Assessment Plan (DEQ, 1999) in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT zones for water associated with the “Easter Snake River Plain” hydrologic province in the vicinity of the Sedero Subdivision. The computer model used site specific data, assimilated by WGI from a variety of sources including operator records and hydrogeologic reports. A summary of the hydrogeologic information from the WGI is provided below.

Hydrogeologic Conceptual Model

The East Margin Area encompasses 821 square miles, representing approximately eight percent of the total area of the ESRP hydrologic province. The majority of the East Margin Area is within Bingham County, with small areas occurring in Bannock, Bonneville, and Power counties.

The regional ESRP aquifer is the most significant aquifer in the East Margin Area and consists primarily of basalt of the Quaternary Snake River Group. However, additional hydrostratigraphic units are used for water supply along the margin of the ESRP. In order of decreasing age, the most significant aquifers in the Michaud Flats area are bedded rhyolite of the Tertiary Starlight Formation and Quaternary-aged pediment gravels, basalt of the Big Hole Formation, and alluvium of the Sunbeam Formation (Jacobson, 1982, p. 7, and Corbett, et al., 1980, pp. 6-10). A few shallow domestic wells in the central Michaud Flats area also are completed in Michaud Gravel, which is the shallow alluvial water-table aquifer. The American Falls Lake Beds Formation (AFLB) confines the deeper aquifers and averages 80 feet in thickness in the central Michaud Flats area (Jacobson, 1984, p. 6). The AFLB pinches out in the eastern Michaud Flats area near the Portneuf River, effectively combining the shallow and deep alluvium into a single water table aquifer (Bechtel, 1994, p. 2-2). Other aquifers in the East Margin Area include fractured quartzite that has been developed near Blackfoot, alluvium near the cities of Firth and Basalt, and pediment gravels in the Gibson Terrace area near Thyee and Chubbuck.

The Sedero Subdivision well is completed in the alluvial aquifer in the eastern Michaud Flats area near the Portneuf River. The average hydraulic conductivity for the alluvial aquifer in this area is 318 feet per day (ft/day), based upon 18 slug tests conducted during a remedial investigation (Bechtel, 1996, Figure 3.3-7B). Analysis of specific capacity data from PWS wells completed in the alluvial aquifer using the method of Walton (1962) results in estimates of hydraulic conductivity ranging from 291 to 361 ft/day, with a geometric mean of 321 ft/day.

The direction of groundwater flow is generally to the north and northwest. Hydraulic gradients range from 1.0 to 5.0 feet per mile (ft/mi) (0.0002 to 0.0009; Jacobson, 1984, p. 14). In areas closest to the Portneuf River, groundwater flow is more easterly, toward the river (Bechtel, 1996, Figure3.3-9, and Spinazola et al., 1997, p. 16).

The hydrology of the eastern Michaud Flats is affected by the presence of a large gypsum impoundment. Gypsum is slurried into the impoundment at a rate of 1,500 gallons per minute (gal/min), and an estimated 500 gal/min recharges the alluvial aquifer (Bechtel, 1994, p. 2-8).

Published estimates for recharge in the eastern Michaud Flats area vary by more than an order of magnitude. Bechtel (1994, p. 2-7) indicates an average recharge of 1.09 inches per year (in./yr), whereas Garabedian (1992, Plate 8) indicates a value of between 15 and 20 in./yr.

The calculated fixed-radius method was used to delineate capture zones for the Sedoro Subdivision well completed in the deep alluvial aquifer in the Michaud Flats area.

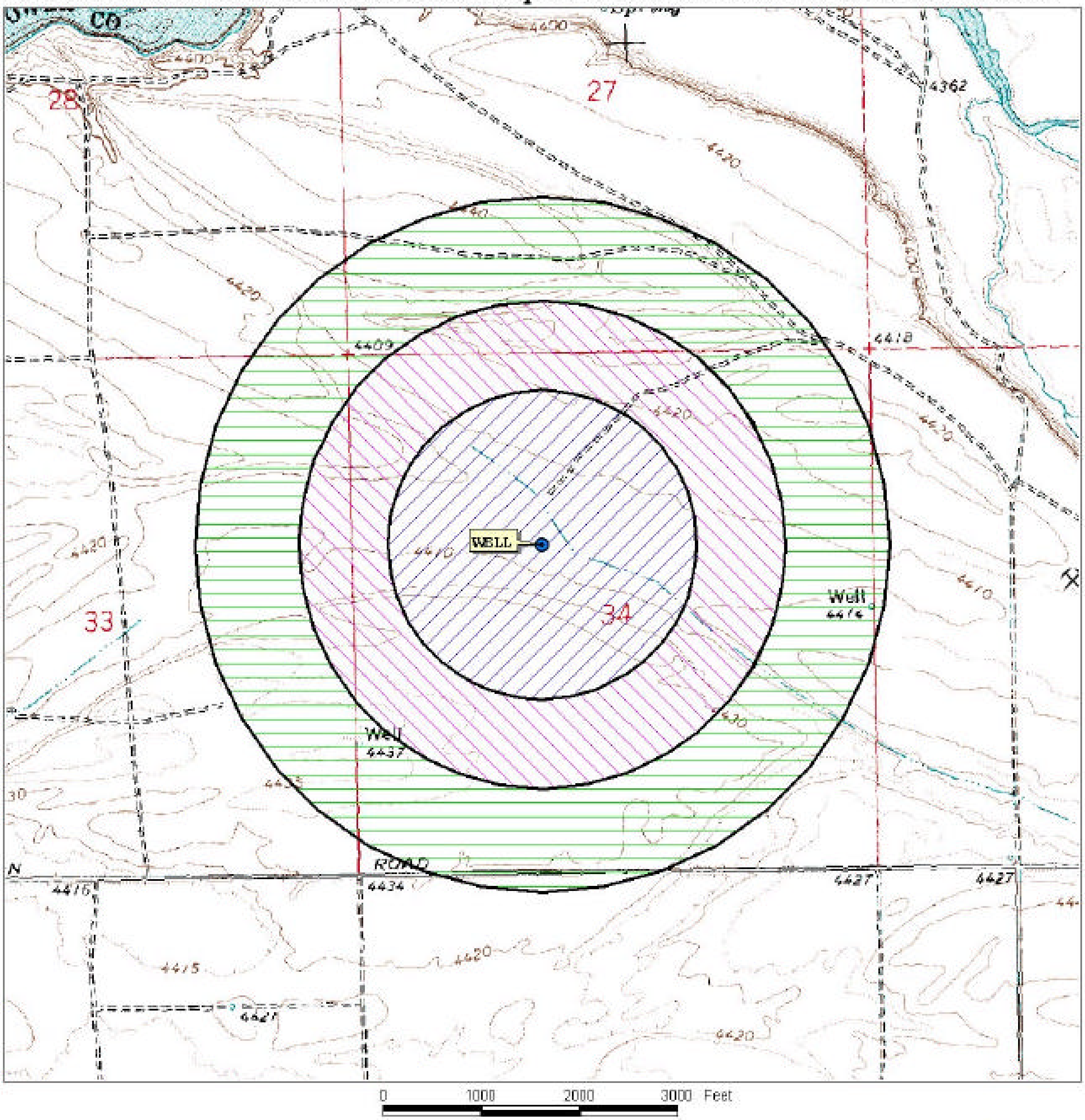
Application of the calculated fixed-radius method for the Sedero Subdivision well resulted in three concentric circles with 0.28-, 0.69-, and 1.4-square-mile areas for the 3-, 6-, and 10-year TOT zones (see Figure 2). The actual data used by WGI in determining the source water assessment delineation area is available from DEQ upon request.

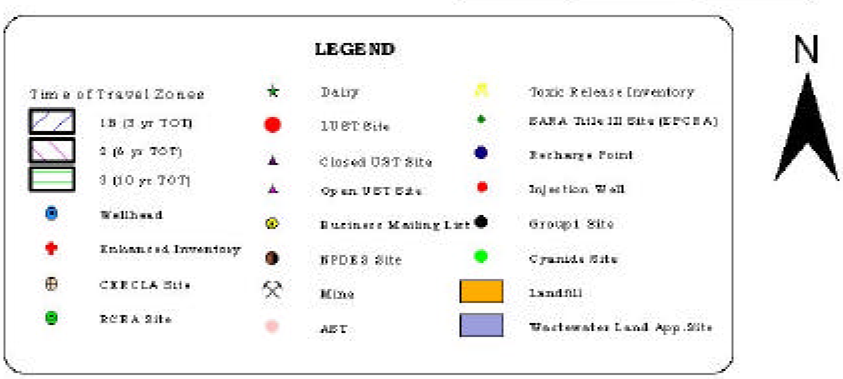
Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act. Furthermore, these sources have a sufficient likelihood of releasing such contaminants into the environment at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. Field surveys conducted by DEQ and reviews of available databases identified potential contaminant sources within the delineated area.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both, to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply source.

FIGURE 2. Sedero Subdivision Delineation Map and Potential Contaminant Source Locations





PWS# 6390022
WELL

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in January 2003. The first phase involved identifying and documenting potential contaminant sources within the Sedero Subdivision source water assessment area through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ.

The second, or enhanced, phase of the contaminant inventory involved contacting the operator to identify and add any additional potential sources in the delineated area. This task was undertaken with the assistance of Mr. Bob McCann. At the time of the enhanced inventory, no additional potential contaminant sources were identified within the delineated source water area by the operator.

An inventory of potential contaminant sources is included in Table 1 below. Sources include Siphon Road, which could potentially contribute IOCs, VOCs, and SOCs, as well as leachable contaminants to the aquifer. A map with the well location, delineated area, and potential contaminant source is provided with this report (see Figure 2).

Table 1. Sedero Subdivision, Well, Potential Contaminant Inventory

Site #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
	Siphon Road	6-10	GIS Map	IOC, VOC, SOC

[2] **TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead**

[3] **IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical**

Due to the limited amount of ground water information at the present time, the calculated fixed radius method was applied to this system. Presently, ground water studies are being conducted regarding the Portneuf River Total Maximum Daily Load (TMDL). That data may give more insight into the ground water movement surrounding the Sedero Subdivision, which might change the shape of the delineation for the well. Due to their relative proximity to the well, Interstate 84, the Portneuf River, the airport, and the potato processing plant might have potential influences upon the Sedero Subdivision's water quality.

Section 3. Susceptibility Analysis

Each well's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic sensitivity, system construction, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for the well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Attachment A contains the susceptibility analysis worksheet. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors. These factors are surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone (aquitard) above the producing zone of the well. Slowly draining soils such as silt and clay have better filtration capabilities and therefore are typically more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

Hydrologic sensitivity rated moderate for the well (see Table 2). This is based upon poor to moderately drained soil classes as defined by the National Resource Conservation Service (NRCS). As the well is only 150 feet deep, the depth to first ground water is less than 300 feet below ground surface (bgs). The well log for the Sedero Subdivision well was unavailable, making it difficult to determine the composition of the vadose zone and the presence of any fine-grained sediment layers that would reduce the downward movement of contaminants to the aquifer. When information is not available, a higher, more conservative score is given.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

The well log was unavailable, limiting the amount of construction information for the well. However, the 1997 sanitary survey (conducted by Southeastern District Health Department) states that the well was drilled to a depth of 150 feet bgs and has an 8-inch diameter casing, that the water table is at 95 feet bgs, and that it is located in a pit, has an acceptable surface seal, and is vented.

The system construction was rated high for the well (see Table 2). The well is located outside of a 100-year floodplain. According to the 1997 sanitary survey, the well's highest production comes from less than 100 feet below the static water level. The well casing lacks a well vent. In addition, the surface seal was noted as being maintained and in good condition. Because a well log was unavailable, the thickness of the 8-inch diameter casing is unknown, and it is also unknown whether the casing(s) and annular seal extend into low permeability units.

The Idaho Department of Water Resources (IDWR) *Well Construction Standards Rules (1993)* require all PWSs to follow DEQ standards. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works (1997)* during construction. Under current standards, all PWS wells are required to have a 50-foot buffer around the wellhead and if the well is designed to yield greater than 50 gpm a minimum of a 6-hour pump test is required. These standards are used to rate the system construction for the well by evaluating items such as condition of wellhead and surface seal, whether the casing and annular space is within consolidated material or 18 feet below the surface, the thickness of the casing, etc. If all criteria are not met, the public water source does not meet the IDWR Well Construction Standards. In this case, because there was insufficient information available to determine whether the well meets all the criteria outlined in the IDWR Well Construction Standards, it was conservatively rated higher.

Potential Contaminant Source and Land Use

The well rated moderate for IOCs (i.e., nitrates, arsenic), and low for VOCs (i.e., petroleum products), SOCs (i.e., pesticides), and microbial contaminants (i.e., bacteria). Irrigated agricultural land is a significant land use within the delineation, contributing the most points to the land use score. The delineation crosses a priority area for the SOCs ethylene dibromide and atrazine. In addition, the delineation exists within a county of high herbicide and agricultural chemical use.

Final Susceptibility Ranking

A detection above a drinking water standard MCL, any detection of a VOC or SOC, or a confirmed microbial detection at the wellhead (well) will automatically give a high susceptibility rating to the well, despite the land use of the area, because a pathway for contamination already exists. In this case, the well rated automatically high for SOCs due to a detection of Di(2-ethylhexyl)-Phthalate (June, 2002) in the well. Additionally, potential contaminant sources within 50 feet of a well will automatically lead to a high susceptibility rating. Having multiple potential contaminant sources in the 0- to 3-year time of travel zone (Zone 1B) contributed greatly to the overall ranking.

Table 2. Summary of Sedero Subdivision Susceptibility Evaluation

Drinking Water Sources	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Potential Contaminant Inventory and Land Use				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well	M	M	L	L	L	H	M	M	H*	M

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical
H* = automatically high rating due to detection of Di(2-ethylhexyl)-Phthalate (June, 2002) in the well water

Susceptibility Summary

In terms of total susceptibility, the well rated moderate for IOCs and VOCs, automatically high for SOCs, and moderate for microbial contaminants. Hydrologic sensitivity rated moderate and system construction rated high for the well. Potential contaminant land use scores were moderate for IOCs, and low for VOCs, SOCs, and microbials. The automatically high SOC rating is due to a detection of Di(2-ethylhexyl)-Phthalate in the well in June 2002. The absence of a well log, the condition of the wellhead, and the large amount of irrigated agricultural land use contributed to the overall susceptibility ratings of the system.

No VOCs or microbials have been detected in the well water. The IOCs barium, fluoride, and nitrate have been detected in the well water samples but at concentrations below the MCL for each chemical, as established by the EPA. The SOC Di(2-ethylhexyl)-Phthalate was detected in the well in June 2002. The well exists in a county with high herbicide and agricultural chemical use. In addition, the delineation intersects SOC priority areas for the pesticides ethylene dibromide and atrazine.

Section 4. Options for Drinking Water Protection

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well or spring sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For the Sedero Subdivision, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey. The Sedero Subdivision may need to consider implementing engineering controls to detect and perhaps eliminate the occurrence of agricultural chemicals and contaminants in the drinking water. As land uses within most of the source water assessment areas are outside the direct jurisdiction of the Sedero Subdivision, collaboration and partnerships with state and local agencies and industry groups should be established and are critical to success. Providing the state and local agencies with a well log of the well may assist them in determining the drinking water needs for the Sedero Subdivision. Educating homeowners and the public about source water will further assist the system in its monitoring and protection efforts.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan. Public education topics could include household hazardous waste disposal methods and the importance of water conservation. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Power County Soil Conservation District, and the Natural Resources Conservation Service.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (e.g. zoning, permitting) or non-regulatory in nature (e.g. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Pocatello Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Pocatello Regional DEQ Office	(208) 236-6160
State DEQ Office	(208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper (mlharper@idahoruralwater.com), Idaho Rural Water Association, at (208) 343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLA – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100-year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5 mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25% of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RCRA – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

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Attachment A

Sedero Subdivision

Susceptibility Analysis Worksheet

<u>Susceptibility Analysis Formulas</u>

Formula for Well Sources

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

1. System Construction		SCORE			
Drill Date	unknown				
Driller Log Available	NO				
Sanitary Survey (if yes, indicate date of last survey)	YES	1997			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	NO	1			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		5			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	YES	0			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		4			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	NO	NO	YES	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		4	2	4	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	NO	0	0	0	0
(Score = # Sources X 2) 8 Points Maximum		0	0	0	0
Sources of Class II or III leacheable contaminants or	YES	2	0	0	
4 Points Maximum		2	0	0	
Zone 1B contains or intercepts a Group 1 Area	YES	0	0	2	0
Land use Zone 1B	25 to 50% Irrigated Agricultural Land	2	2	2	2
Total Potential Contaminant Source / Land Use Score - Zone 1B		4	2	4	2
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or	YES	1	0	0	
Land Use Zone II	25 to 50% Irrigated Agricultural Land	1	1	1	
Potential Contaminant Source / Land Use Score - Zone II		2	1	1	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
Total Potential Contaminant Source / Land Use Score - Zone III		3	3	3	0

Cumulative Potential Contaminant / Land Use Score	13	8	12	4
4. Final Susceptibility Source Score	12	11	11	11
5. Final Well Ranking	Moderate	Moderate	High	Moderate